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AUTHOR Seltz, Larry
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ABSTRACT

The current trend toward expanded use of automation and computers in manufacturing has increased the need for a working partnership between industry and vocational education. One such partnership involves the members of the personnel development staff at Nissan Motors in Smyrna, Tennessee and local secondary and postsecondary vocational education programs. Staff developers at the Nissan plant have initiated a thorough, intensive training program to acquire the skills they need to work at the plant. This training consists, among other things, of self-paced course modules, hands-on training, and classroom training involving the use of training materials provided by the plants' equipment suppliers. In order to assist in the massive retraining of the American labor force that will be necessary to develop workers who are equipped to handle increased automation, vocational educators must provide students with training in problem solving, working as a group to make decisions, and assuming initiative in their jobs. Vocational educators need to develop ever-closer ties with business and industry. (MN)

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REMARKS

LARRY SELTZ

AMERICAN VOCATIONAL ASSOCIATION CONVENTION

DECEMBER 3, 1983

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I am pleased to have this opportunity to talk with you today about the working partnership necessary between industry and vocational education.

As a new business in Tennessee, we have established close ties with the educational system because education and training are important foundations of our company and vital to our success.

The growing dialogue between education at all levels and the marketplace is a heathly one in my view, and it has the potential to greatly benefit business as well as keep educators current with what the demands of the marketplace really are. I am particularly sensitive to the need for establishing this relationship because I have personally instructed vocational education classes and understand the requirements. During our plant launch, we involved three local high schools, a vocational technical school and Middle State University in conducting training programs for our employees. They played a vital role in the development of personnel at Nissan.

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Some experts tell us that we are in the midst of a second industrial revolution in this country whose impact is as far reaching as the first industrial revolution when the mass producing of goods was introduced. This quite revolution which began in the mid-70's is the technology revolution, in which automation and computers have become essential to the manufacturing process. Although the revolution was quiet, it has had a detrimental affect

on some of our industries where we have lost our dominance and even our competitive edge.

I feel that we are in a unique position with our new company because we are building a manufacturing faciltiy and a company organization all at the same time. We also have the advantage of being able to look at the best features of the American auto industry and combine them with the best of Japanese techniques and technology. All of us are excited by these challenges, and I personally feel that we will soon be at the forefront of manufacturing organizations both in our technical areas and in or management and employee relations.

I would first like to focus on the training of our employees. As we began to assemble a skilled labor force for our plant, we had to determine the skills employees would need to work with our complex machinery. We found that the robots and computerized equipment demanded a different type worker than traditional industry required. The people we needed required several skills instead of the traditional proficiency in one skill in order to keep the complex machinery running. They had to be able to solve problems, have a good basic understanding of trouble-shooting techniques, and have the ability to work with other people as a team.

For these reasons, we began to develop a thorough, intensive training program to help people acquire the skills they needed to work in our plant. Nissan has committed $56 million to this training effort, including a $4 million training center, which is the largest, most comprehensive educational effort by a corporation that I know of. In addition, the State of Tennessee provided Nissan with $7.3 million for pre-employment training.

Many of the course modules are self-pacing so workers can proceed at their own rate in learning the new material. They are offered guidance as they need it, and these pre-employment courses take place after work hours so that participants can continue their regular jobs while they gain new skills. Let me remind you that the applicants for these positions are already experienced in the work force in at least one skill.

After the trainee is hired by Nissan we begin additional skills training on plant equipment, building on what they have already learned. We do this in a 30,000 square foot training center in which we have a reproduction or simulation of all major equipment that employees will encounter in our operations. This is hands-on training. After the trainees reached a certain skill level, we sent them to Japan to work in Nissan plants on assembly lines similar to ours. This was an expensive proposition, but one that we believe was well worth the effort.

Some of our employees had almost two years of training before our plant opened for production including 383 people who trained in Japan for three - to - six months.

We decided early that there would be five levels of management in the company instead of the usual 10 or 12 in traditional American auto manufacturing companies. This was to assure that information could flow freely up from the assembly line and back down again, as quickly as needed to operate efficiently as a team. This also dictated that we explore ways to develop a highly participative management style, which means that everyone must have some input into the decision-making process.

In addition, the workers in this facility will also have the responsibility of being their own inspectors. This is a Japanese philosophy that we chose to transfer to this country. The person who is closest to the production line, who works on the equipment, is the one who will have more knowledge about how to operate and maintain the equipment and be responsible for the quality of the product he or she produces.

Employees also get further training in the classroom. They use training materials provided by our equipment suppliers to learn about all the equipment in the plant. Courses in problem-solving or systematic trouble-shooting, as we call it, are taught. Employees learn how to identify problems, determine the cause and decide which of a number of alternatives is the best solution to the problem. Other classes focus on teamwork and attitudes.

Now I want to focus my remarks on three areas in which the quiet industrial revolution is making a tremendous impact.

U.S. companies are having to adjust many aspects of their operations, and I will go into the specifics in a minute.

The labor force also feels the impact of technology. Some people have lost their jobs to technology and others have had to re-train to keep their jobs. Students preparing to enter the working world are asking how to prepare themselves.

When the labor force and the students are affected, the people concerned with technical education, that is the administrators and educators, face changes, also.

Let's go back and look at the specific ways in which these groups are affected:

Employees are the company's most valuable resource. This may sound like a paradox when we have been focusing on technology to this point, but it's true. With complex equipment, it takes very highly skilled employees to keep the machinery running and to understand it well enough to make it run efficiently. The most up-to-date equipment in the world will not manufacture a quality product without the personnel to operate and maintain it and to plan production schedules.

Training represents a large investment of time and money on the part of a company. We are just one example of this investment, but many hi-tech companies are having to develop comprehensive training programs. Formerly, a worker may have been trained as little as two hours before going to the shop floor. Contrast this with some of our employees who had trained nearly two years before we produced our first truck for the market. This is necessary for entry level jobs. Re-training and continuing education will be necessary as the company adapts even newer technology to its manufacturing operations.

With this investment of time and money in training of employees, companies must find ways to retain highly skilled personnel. Turn-over is costly and adversely affects quality. Therefore many organizations are seeking ways to make their jobs more attractive so people will want to stay. Benefit programs such as expanded health coverage, wellness programs and employee assistance programs are being implemented. Higher pay for higher-skills programs are being developed. The business atmosphere is becoming more open with employee newsletters, social events, and more personal attention so that people know that they are a valuable part of the organization.

Management is improving its approaches to running companies. With more highly trained personnel, a company now depends on the intellectual resources of the employees since automation performs the repetitive tasks. In our new company, for example, we have chosen to establish a highly participative management style in which the employees have a voice in how they perform their jobs. The information that personnel have to offer is very valuable to management, and we have built a communication mechanism which allows for this information exchange.

Our personnel seem to like this system because it recognizes their abilities. People just naturally like to be consulted, and if their opinions are asked, they will continue to make suggestions, and good ones.

Companies are searching for new ways to improve quality and productivity in their manufacturing processes. This is not just a whim of business. Our American consumers have spoken very loudly and clearly that they do not want to buy goods that do not hold up. They expect their toasters to toast and their washers to wash. People will not buy inferior quality goods anymore because quality products are available through world markets. Therefore, the only way for a company to stay in business is to produce a high quality product at a competitive price.

We used to think that productivity was more important than quality, but we see today that they go together. Certainly we can not hand-make every item sold in this country, but the precision of automation helps us increase our productivity while achieving consistent quality.

Companies react to changes in much the same way that individuals do; even good changes produce a certain amount of anxiety and stress. There will always be people who want to continue doing business just as it has always been done in the past.

How is hi-tech affecting the people working and preparing to work in this country?

First, jobs are being restructured. Many jobs have a much broader focus than before. I have already talked a little about needing multi-skills for our jobs at Nissan, but this is characteristic of all high-tech

industries. For example, at Nissan, our maintenance technicians are trained in electricity, electronics, hydraulics, pneumatics, mechanics and welding as well as specific equipment training. They will not have the in-depth knowledge in a particular skill, but they will have the level and variety of skills necessary to do their jobs.

Technical schools are now crammed with people whose jobs have been phased out, and re-training is essential for those workers who want to keep up with technology.

Continuing education is necessary to ensure that an employee will continue to be valuable to the company. This applies from manufacturing positions to secretaries who now must master word processors and computerized equipment in an office setting.

The technical administrators and educators feel the impact of these changes, and I see this group as having the opportunity to make some of these changes easier for both industry and the work force. I see a new, closer relationship emerging between education and business which I think is very good. For example, at Nashville Tech we assisted in the development of a curriculum for a two year associate's degree in robotics and then made a donation to help the school buy equipment.

A new training philosophy can and should begin in our school programs. Students need to get training in problem solving, working as a group to make decisions, and preparing people to assume initiative in their jobs.

Learning theoretically about complex equipment is not enough; trainees need hands-on training to be able to master skills necessary to perform effectively on the job. This is an expensive proposition, but essential for the future of technical training. In our training center, we simulate all major operations to be performed in our plant so that we can check people out before their skills are tested on the shop floor.

Our technical training is changing so fast that educators need to update themselves at a rate never before demanded. Certainly one way to do this is with close ties between education and business. I feel that a working partnership between education and industry is essential if our country is going to remain an industrial nation of the future. Thank you.